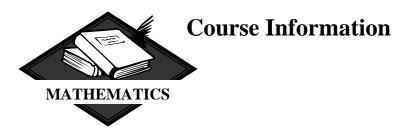
## Parent / Student



## PROBABILITY AND STATISTICS

Counselors are available to assist parents and students with course selections and career planning. Parents may arrange to meet with the counselor by calling the school's guidance department.

### COURSE DESCRIPTION

This course provides an understanding of the kinds of regularity that occur in random functions and also provides experiences in associating probabilistic mathematical models with phenomena in the real world. Topics include averages, measures of variation, frequency distributions, and probability functions associated with random variables, binomial distributions, sampling, the normal curve, and statistical methods available for decision making. The course can be taken at any point after the completion of Algebra II/Trigonometry or Algebra II.

## **PREREOUISITE**

Algebra II or Algebra II/Trigonometry

### **OPTION FOR NEXT COURSE**

Trigonometry and/or Discrete Mathematics

## REQUIRED STUDENT TEXTBOOK

Elementary Statistics: Picturing the World, Third Edition, Larson and Farber, Pearson/Prentice Hall (2006)

## RECOMMENDED CALCULATOR

TI-83 Plus or TI-84 Plus

## <u>Virginia Beach Instructional Objectives</u> Probability and Statistics (1 Semester) – MA3190

VBO#	Objective
	Descriptive Statistics
MA.PS.1.1	The student will identify uses and abuses of statistics. (SOL PS.1)
<b>MA.PS.1.2</b>	The student will construct a visual form of a data set and draw conclusions from
	the data. (SOL PS.1, PS.3)
<b>MA.PS.1.3</b>	The student will compute and interpret measures of central tendency and
	variation given a set of data. (SOL PS.2, PS.3)
<b>MA.PS.1.4</b>	The student will calculate and interpret z-scores, percentiles, quartiles, and
	deciles. (SOL PS.4)
	Probability
MA.PS.2.1	The student will utilize empirical and classical methods for finding probabilities. (SOL PS.12)
<b>MA.PS.2.2</b>	The student will classify two or more events as complementary, dependent,
	independent, and/or mutually exclusive. (SOL PS.11, PS.12)
<b>MA.PS.2.3</b>	The student will apply the law of large numbers concept and the addition and
	multiplication rules of compound events. (SOL PS.11, PS.12)
<b>MA.PS.2.4</b>	The student will apply the fundamental counting rule, factorial, permutation,
	and combination to problem solving.
351 700 0 1	Discrete Distributions
MA.PS.3.1	The student will construct a discrete probability distribution and find the mean,
NA DO O O	variance, and standard deviation. (SOL PS.13)
MA.PS.3.2	The student will compute the mean, variance, standard deviation, and
MA DC 2 2	probabilities in a binomial experiment. (SOL PS.13)
MA.PS.3.3	The student will apply probability distributions to problem solving. (SOL PS.13)
	Continuous Distributions
MA.PS.4.1	The student will compute probabilities for continuous uniform distributions.
WIA.I 5.4.1	(SOL PS.16)
<b>MA.PS.4.2</b>	The student will identify properties of a normal distribution and use a table or
	graphing calculator to apply the normal distribution to determine probabilities.
	(SOL PS.16)
MA.PS.4.3	The student will compute probabilities and scores for standard and nonstandard
	normal distributions. (SOL PS.16)
MA.PS.4.4	The student will use normal distributions to solve problems. (SOL PS.16)
	Inferential Statistics
MA.PS.5.1	The student will establish a confidence interval for the population mean and
	determine the sample size. (SOL PS.17)
MA.PS.5.2	The student will establish a confidence interval for a population proportion and
	determine the sample size. (SOL PS.17)

MA.PS.5.3	The student will describe methods of data collection. (SOL PS.8)
<b>MA.PS.5.4</b>	The student will plan and conduct a survey. (SOL PS.9)
	Correlation and Regression
MA.PS.6.1	The student will determine whether a linear relationship exists between two
	variables. (SOL PS.4)
MA.PS.6.2	The student will make and interpret predictions using the line of regression.
	(SOL PS.4)



#### MISSION STATEMENT

The Virginia Beach City Public Schools, in partnership with the entire community, will empower every student to become a life-long learner who is a responsible, productive and engaged citizen within the global community.

Dr. James G. Merrill, Superintendent

# DEPARTMENT OF CURRICULUM AND INSTRUCTION 2512 George Mason Drive • P.O. Box 6038 • Virginia Beach, Virginia 23456-0038

Virginia Beach City Public Schools does not discriminate on the basis of race, color, national origin, sex, disability, or age in its programs and activities and provides equal access to the Boy Scouts and other designated youth groups. School Board policies and supporting regulation (Policies 2-33, 4-4, 5-7, and 6-7 and Regulation 5-44.1) provide equal access to courses, programs, counseling services, physical education and athletics, vocational education, instructional materials, and extracurricular activities. The following staff are designated to handle inquiries regarding the non-discrimination policies: Director of Guidance Services at (757) 263-1980 or to the Assistant Superintendent of Human Resources at (757) 263-1133.

For further information on notice of non-discrimination, visit <a href="http://wdcrobcolp01.ed.gov/CFAPPS/OCR/contactus.cfm">http://wdcrobcolp01.ed.gov/CFAPPS/OCR/contactus.cfm</a> for the address and phone number of the office that serves your area, or call 1-800-421-3481.

Alternative formats of this publication which may include taped, Braille, or large print materials are available upon request for individuals with disabilities. Call or write The Department of Curriculum and Instruction, Virginia Beach City Public Schools, 2512 George Mason Drive, P.O. Box 6038, Virginia Beach, VA 23456-0038. Telephone (757) 263-1070 or (757) 263-1429; fax (757) 263-1424; TDD (757) 263-1240

Visit our website at *vbschools.com* - your virtual link to Hampton Roads' largest school system

No part of this publication may be produced or shared in any form without giving specific credit to Virginia Beach City Public Schools.

CIE-0005 (Revised 8/12)